

Application No.: 09/831,001
Paper Dated: December 2, 2004
In Reply to Office Action Dated November 18, 2004
Attorney Docket No.: 702-010717

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-12. (Cancelled)

13. (Currently Amended) A device for treating a gas/liquid mixture, comprising:

- a) a substantially vertical tube having an inlet opening for the mixture and an outlet for the mixture located downstream;
- b) rotating means arranged in the tube for setting the mixture into rotating movement;
- c) one or more outlet openings arranged downstream relative to the rotating means for allowing a separated part of the mixture to flow laterally out of the tube;
- d) a return conduit arranged centrally in an axial direction through the rotating means for reintroducing the flow which has exited via the outlet openings, and including a divergence element at an end part of the return conduit for causing the reintroduced flow to diverge substantially laterally outward from the return conduit and substantially prevent liquid creep flow along the rotating means; and
- e) an axial obstruction in the reintroduced flow path for inducing the reintroduced flow in the divergence element to diverge substantially laterally outward from the divergence element;

wherein a flow path of the mixture comprises moving up the tube, out the one or more outlet openings, and reintroducing the flow through the return conduit with the flow diverging substantially laterally outward from the return conduit.

14. (Previously Presented) The device as claimed in claim 13, wherein the divergence element comprises slots defined in the return conduit.

15. (Previously Presented) The device as claimed in claim 13, wherein the axial obstruction comprises a substantially conical disposed in the reintroduced flow path.

16. (Currently Amended) The device as claimed in claim 13, wherein the outlet openings are formed by a number of longitudinal slots in the side wall of the tube.

17. (Previously Presented) The device as claimed in claim 13, wherein the rotating means comprise a swirl element, of which the outflow angle for the mixture amounts to 15°- 85°.

18. (Previously Presented) The device as claimed in claim 17, wherein the outflow angle amounts to about 45°, about 60° or about 70°.

19. (Previously Presented) The device as claimed in claim 13, wherein 50% of droplets in the separated part of the mixture have a diameter of 4 μm or less.

20. (Currently Amended) An installation for separating water from gas, comprising:

- a) a vessel provided with a connecting stub for supply of the mixture;
- b) a drain conduit for draining liquid collected in the bottom of the vessel; and

c) one or more boxes in which one or more devices for treating a gas/liquid mixture, wherein the device comprises:

a substantially vertical tube having an inlet opening for the mixture and an outlet for the mixture located downstream;

rotating means arranged in the tube for setting the mixture into rotating movement;

one or more outlet openings arranged downstream relative to the rotating means for allowing a part of the mixture to flow laterally out of the tube;

d) a return conduit arranged centrally in axial direction through the rotating means for reintroducing the flow which has exited via the outlet openings, and

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including a divergence element at an end part of the return conduit for causing the reintroduced flow to diverge substantially laterally outward from the return conduit and substantially prevent liquid creep flow along the rotating means; and

e) an axial obstruction in the reintroduced flow path for inducing the reintroduced flow in the divergence element to diverge substantially laterally outward from the divergence element;

wherein a flow path of the mixture comprises moving up the tube, over the one or more outlet openings, and reintroducing the flow through the return conduit with the flow diverging substantially laterally outward from the return conduit.

21. (Previously Presented) The installation as claimed in claim 20, wherein at least one liquid conduit extends between the box and the space in the bottom of the vessel where the liquid is collected.

22. (Currently Amended) A device for treating a gas/liquid mixture according to claim 13, comprising:

a) a substantially vertical tube having an inlet opening for the mixture;
b) rotating means arranged in the tube for setting the mixture into rotating movement;

c) a substantially conically tapering outlet for the mixture located downstream, wherein one or more slots are arranged to allow a part of the mixture to flow laterally out of the outlet;

d) a return conduit arranged centrally in an axial direction through the rotating means for reintroducing the flow which has exited via the one or more slots, and including a divergence element at an end part of the return conduit for causing the reintroduced flow to diverge substantially laterally outward from the return conduit and substantially prevent liquid creep flow along the rotating means; and

e) an axial obstruction in the reintroduced flow path for inducing the reintroduced flow in the divergence element to diverge substantially laterally outward from the divergence element.

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23. (Previously Presented) The device as claimed in claim 22, wherein the conicity of the tapering outlet amounts to 1° - 30°.

24. (Previously Presented) The device as claimed in claim 22, further including an additional tube part which protrudes at least partially upstream in the outlet.

25. (Cancelled)

26. (Cancelled)

27. (Currently Amended) A device for treating a gas/liquid mixture, comprising:

- a) a substantially vertical tube having an inlet opening for the mixture and an outlet for the mixture located downstream;
- b) a swirl element arranged in the tube for setting the mixture into rotating movement;
- c) one or more outlet openings arranged downstream relative to the swirl element rotating means for allowing a separated part of the mixture to flow laterally out of the tube;
- d) a return conduit arranged centrally in an axial direction through the rotating means for reintroducing the flow which has exited via the outlet openings, and including a divergence element at an end part of the return conduit causing reintroduced flow to diverge substantially laterally outward from the return conduit and substantially prevent liquid creep flow along the swirl element; and
- e) an axial obstruction in the reintroduced flow path for inducing the reintroduced flow in the divergence element to diverge substantially laterally outward from the divergence element.

28. (Previously Presented) The device as claimed in claim 27, wherein the divergence element comprises slots defined in the return conduit.

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29. (Previously Presented) The device as claimed in claim 27, wherein the axial obstruction comprises a substantially conical element disposed in the reintroduced flow path.

30. (Currently Amended) The device as claimed in claim 27, wherein the outlet openings are formed by a number of longitudinal slots in the side wall of the tube.

31. (Previously Presented) The device as claimed in claim 27, wherein the outflow angle of the swirl element for the mixture amounts to 15°- 85°.

32. (Previously Presented) The device as claimed in claim 31, wherein the outflow angle amounts to about 45°, about 60° or about 70°.

33. (Previously Presented) The device as claimed in claim 15, wherein the conical element is disposed at the end of the return conduit.

34. (Previously Presented) The device as claimed in claim 29, wherein the conical element is disposed at the end of the return conduit.